# Montgomery County, Maryland
# Community Use of Public Facilities Ball Field Web Site

Program Category #14: Information Technology

## 1.0 Abstract

The Montgomery County, Maryland Department of Information Systems and Telecommunications - Geographic Information Systems (DIST-GIS) team in partnership with the Community Use of Public Facilities Program (CUPF) created a web site to enable the general public (customers) to find a ball field managed by CUPF in Montgomery County, Maryland. Customers are able to search for a ball field by a complex/school name, by geographic area, or by generating an alphabetical list of all ball fields managed by CUPF. The results of the ball field search options enable customers to display contact information and access detailed field descriptions, rules and regulations, and aerial photographs for 210 ball field facilities. The web site was developed as part of Montgomery County's e-Government web portal, known as eMontgomery (http://www.emontgomery.org/). It can be accessed through the eMontgomery web portal, under the Recreation category, or by itself (http://routemap.emontgomery.org/cupf/). Web browsers, such as Netscape 4+ or Internet Explorer 4+, can be used to access the web site.

## 2.0 Need for the Program

The Ball Field web site was developed in response to CUPF's initiative to enhance customer services for users of school ball fields in Montgomery County, Maryland. The development of a web site would enable customers to search, find, and print ball field contact information, field summaries and descriptions, rules and regulations, and aerial photographs for each ball field complex. In addition, CUPF requested that customers should also have the capability to generate maps and travel directions to and from school ball fields. For example, a customer, possibly a Little League coach, can search the CUPF ball field database, find a suitable CUPF baseball field, print contact information, rules and regulations, and field descriptions, and generate maps and travel directions for his players' parents.

It is anticipated that future revisions to the web site will provide customers with a central site in which to submit applications for all county field permits and pay on-line.

## 3.0 Description of the Program

The CUPF Ball Field web site was developed on a DIST-GIS Intranet Web Server connected to the Montgomery County Government Intranet. The Intranet, or internal web network, provided an effective testing environment for DIST-GIS programmers and enabled the CUPF staff to review the design and content of the web site using a web browser (Netscape 4.7). Database and content revisions were provided by CUPF, via e-mail attachment, and addressed by DIST-GIS staff upon arrival. Once the web site was approved by CUPF, it was uploaded from the DIST-GIS Intranet web server to an eMontgomery web server for public access. The following procedures were used to create and maintain the web site.

**CUPF Ball Field Web Site Development**

A. Determine the web site's functional requirements

The functional requirements, provided by CUPF in early December 2000, requested that a dynamic or interactive web site be developed to enable the public to access ball field contact information, descriptions, rules and regulations, maps, and travel directions through the eMontgomery Internet Portal by January 1st, 2001. CUPF was to provide the ball field database and content for input into the web site, while DIST-GIS staff were to design an interface on the Montgomery County Intranet to enable customers to search for a ball field facility by name or geographic area. Once a ball field was located, a customer would be able to generate details describing facility amenities and print maps and travel directions. The Intranet web site was to be reviewed and approved by CUPF prior to Internet deployment to ensure data and information quality.

Once approved, the web site was to be published to a high-performance web server, maintained by eMontgomery staff, that was manageable, scalable, reliable, and secure. Consequently, the web server would have to support simultaneous "hits" from either Netscape 4.0 + and Internet Explorer 4 + web browsers and be able to open a web page or web map in less than 10 seconds using a standard 56k modem 361 days (99%) a year. The ball field database was to be maintained by CUPF and delivered to DIST-GIS for input into the web site on an as-needed basis.

The web site's functional requirements were established by CUPF in cooperation with eMontgomery, Maryland-National Capital Park and Planning Commission (M-NCPPC) and DIST-GIS in early December 2000. Both CUPF and M-NCPPC schedule ball fields in the County; thus, it was important to provide customers with easy access to information on all school and park fields available for use in Montgomery County, Maryland. The CUPF web site was to be published on the eMontgomery Portal with a direct link to M-NCPPC's web site. Future revisions of ball field web sites will be coordinated between agencies through eMontgomery.

B. Collect and deliver web site documents, content, and data

CUPF provided text content, data, and design recommendations to DIST-GIS staff, via e-mail, for input into the ball field web site. Documents, sent by e-mail attachment, describing field classifications as well as rules and regulations were delivered in Microsoft Word format, while the ball field database was delivered in Microsoft Access format. The structure of the database was reviewed and updated by DIST-GIS staff to enable dynamic on-line access. Design recommendation documents were also sent via e-mail attachment in Hyper-text Markup Language or HTML format.

C. Design, program, and test the web site on the Intranet

A customer-friendly graphic user interface (GUI) was designed by DIST-GIS staff using Hyper-text Markup Language (HTML) and Microsoft's Active Server Page (ASP) technology to satisfy the functional requirements of the web site. The web site was created using

Microsoft's Frontpage 2000 on a DIST-GIS Intranet web server, a Dell Pentium III 500 MHz workstation with 20 gigabytes of storage space and 256 megabytes of RAM running Microsoft's Windows NT 4.0 and Peer Web Services. Open Database Connectivity (ODBC) protocols, available in Microsoft Windows products, were used to establish a dynamic interface between the ball field Microsoft Access database and the web pages programmed using Structure Query Language (SQL) requests within the ASP code. A web background image was also created for the web site by DIST-GIS staff.

The eMontgomery Athletic Ball Field home web page was designed to introduce the CUPF web site and the M-NCPPC web sites. Options for searching the CUPF ball field database by facility name or by geographic area are provided (Figure 1). To search for a facility by name, a customer needs only input the first few letters of the facility name or title to generate a list of results depicting contact and location information. The customer was also given the option to search the database by geographic area, using a drop-down list of regions sub-dividing Montgomery County. The home page also provided an option to simply list all of the CUPF ball field facilities indexed by name.

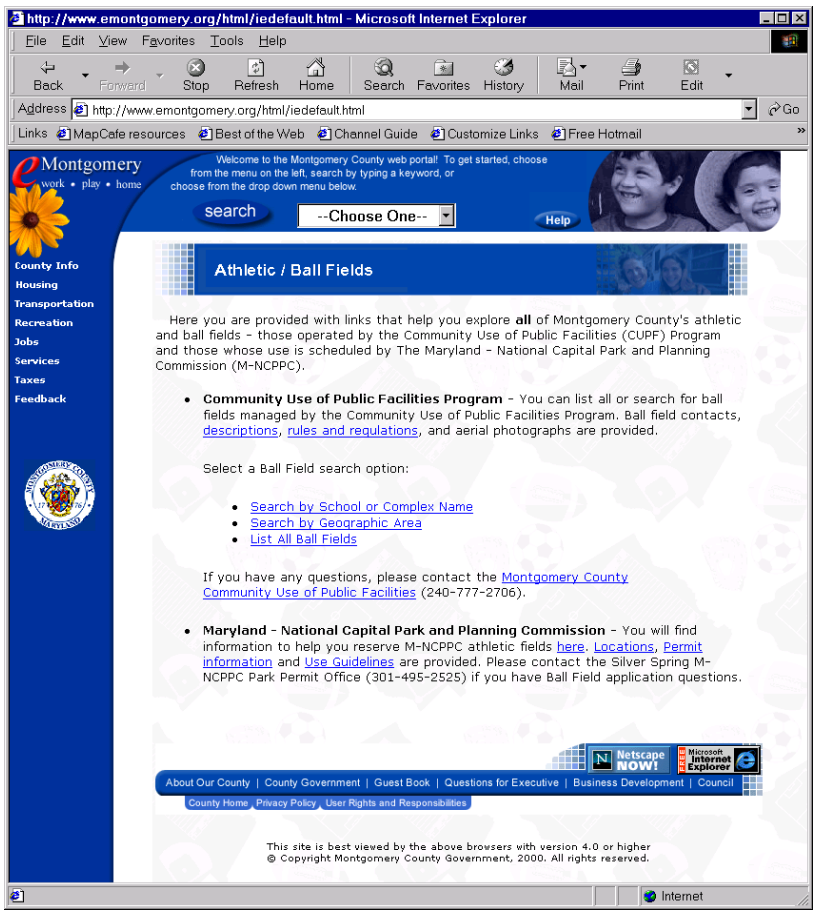

Figure 1: The eMontgomery Athletic/Ball Fields Home Page

The results generated by the search tools provided a list and a count of ball field facilities found in the database with address and contact information. In order to access more details about a particular ball field facility, the customer need only click the facility name hyperlink listed in the search results (Figure 2).

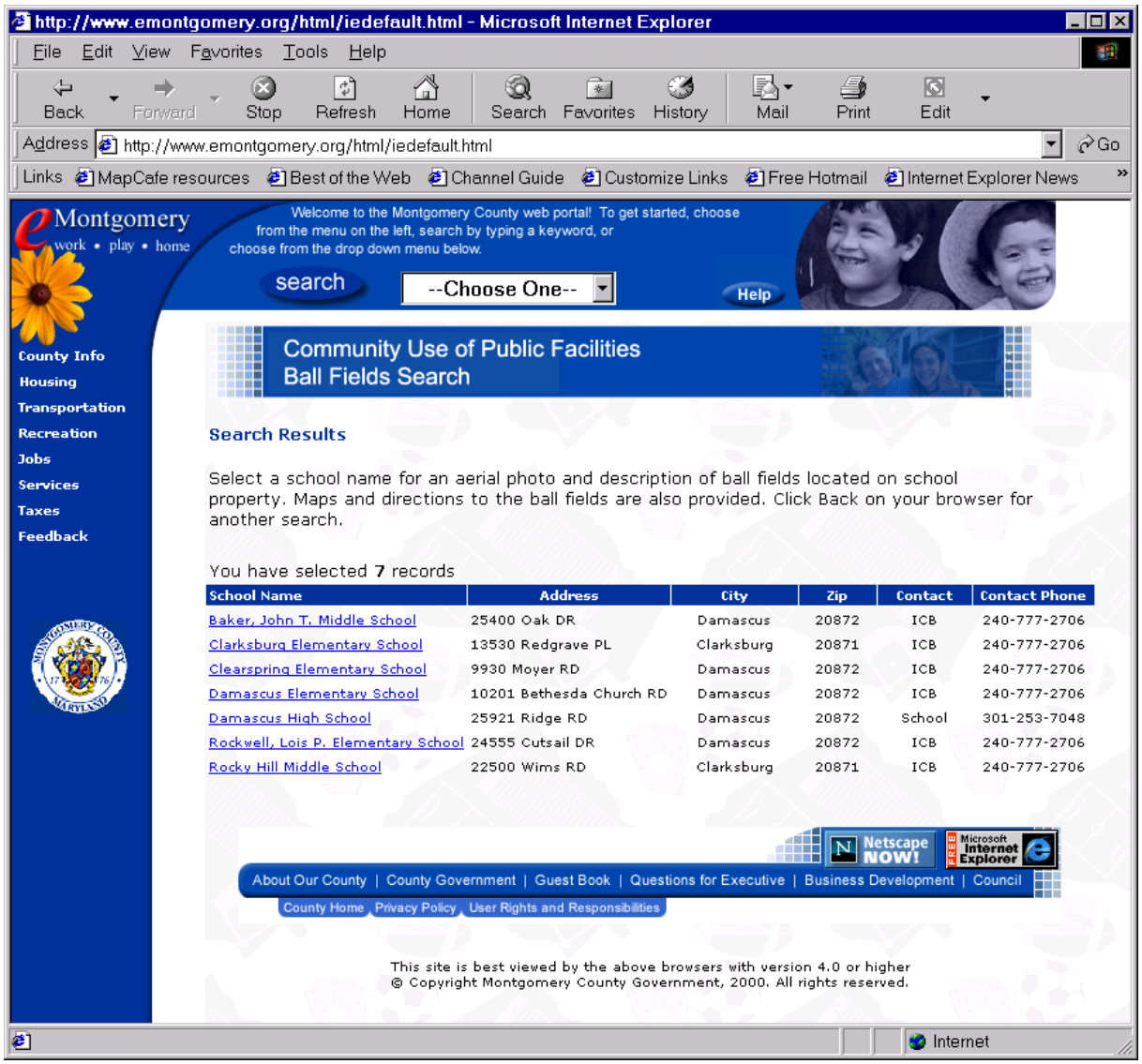

Figure 2: CUPF Ball Field Geographic Search Results

A dynamically generated web page illustrating an aerial photo image (.jpg) of the facility, field summaries and descriptions, contact information, and links to Internet-based map services providing maps and travel directions are presented to the customer (Figure 3). The customer can print search results or details using a standard web browser such as Netscape 4+ or Internet Explorer 4+.

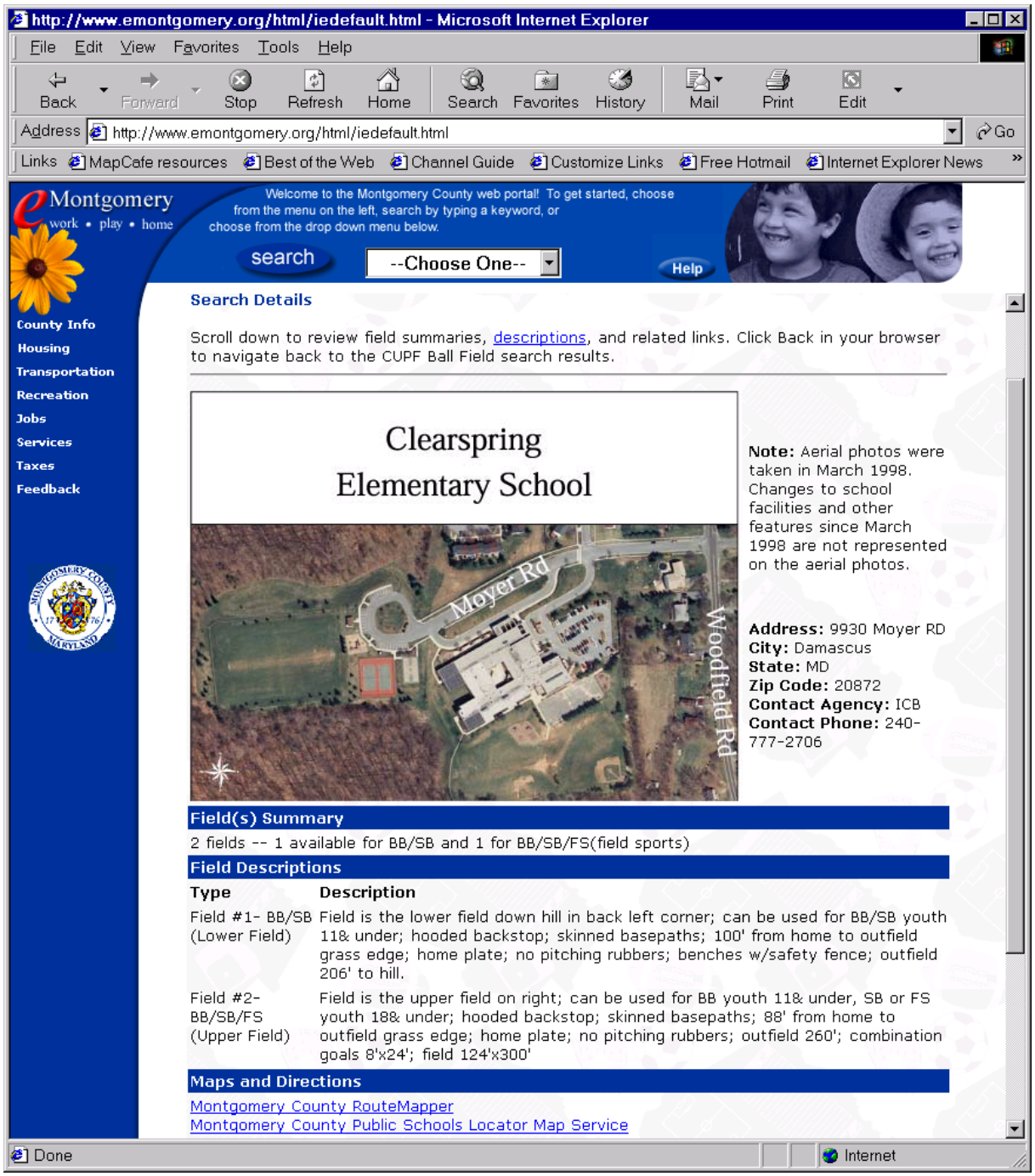

Figure 3: CUPF Ball Field Details web page

D. Review, revise, and approve the Intranet web site

The web site was published on the DIST-GIS Intranet web server, a node on the Montgomery County Government Intranet, so that CUPF could review and comment on the web site. Once the CUPF web browsers were properly configured to access the DIST-GIS Intranet web

server, they were able to provide useful recommendations to improve the web site. Revisions were incorporated by DIST-GIS and approved by CUPF, and the web site was published to an eMontgomery web server for public access.

E. Maintain the Internet web site
CUPF staff are responsible for maintaining the ball field database and delivering updates to DIST-GIS in Microsoft Access format on an as needed basis. DIST-GIS staff will provide web site programming support, while eMontgomery staff will tend to the administration of the web server.

## 4.0 Use of Technology

Microsoft FrontPage 2000 was used as the web development software to design, program, and test HTML and ASP programs. HTML was used to add text and graphics, while ASP scripts, using VB Script, were used to create dynamic web pages. Aerial photo and background images were developed using ESRI's Workstation ArcInfo, Adobe Illustrator 9, and Adobe Photoshop 5.5. An ODBC interface was used to relate web browser SQL requests with the Microsoft Access database management software.

The web site was initially published to the Montgomery County Government Intranet on a DIST-GIS Intranet web server, a Windows NT 4.0 Dell Pentium III 500mhz workstation with 20 gigabyte hard drive and 256 megabytes of RAM running Microsoft's Peer Web Services. Once approved for public access, the web site was published to a Dell Pentium 1600 web server running Windows 2000 Application Server software in concert with eMontgomery.

## 5.0 The Cost of the Program

The total cost to develop the CUPF ball field web site is estimated at $4,500. Approximately 160 hours of staff time were invested into the development of the web site. It is anticipated that additional equipment costs and staff time for web administration, upgrades, and maintenance will change over time with advances in web technology. Web updates and server maintenance costs, not factored into the total cost of web site development, are estimated to be $2,000 annually. The hardware and software used to generate the web site already existed and were not factored into the cost estimate.

In order for a customer to access the CUPF ball field web site, a Pentium 200 MHz or better Intel-based personal computer running Windows 95, Windows 98, Windows 2000, or Windows NT 4 with a Netscape 4 + or Internet Explorer 4+ web browser is recommended. A standard 56K modem enabling a connection to the Internet should satisfy most customer needs. Although a computer may cost the customer over $1,000.00, the web browser software is free. In addition, the customer can purchase a printer costing approximately $150.00 to print information and generate maps from the web site.

## 6.0 The Results/Success of the Program

Since the web site was launched recently, the results of the web site have not been tabulated. However, CUPF is already using the web site for ball field customer service and expects to reduce the staff time spent in answering customer service-related questions from the general public. The performance of the web site will be quantified by web server reporting software technology and by conducting regular web site meetings. Web server reporting software counts the number of hits and requests, locates the customer origin, and identifies the date and time of the client/server transaction. As a result, the web server configuration can be improved to accommodate customer requests.

## 7.0 Worthiness of an Award

The CUPF ball field web site is a low-cost solution that provides the tools and information necessary to support and market CUPF customer services to the general public. The web site was designed to expand and allow for e-Government applications that will eventually enable customers to submit applications and pay for ball fields permits on-line. By using the Internet to deliver customer services, CUPF will reduce staff time spent responding to customer queries regarding ball fields. The web site could also be used as a model for other counties and municipalities who provide similar services.